STCG Subcon Subgroup Meeting Minutes

March 16, 1999

Introductions/Announcements (Fred Serier)

Fred welcomed the group and checked to see if we had a quorum. It was determined that there was a quorum, with five of the ten voting members present. Two other voting members had submitted endorsements of the H2S technology by e-mail prior to the meeting.

Introductions were made around the room. Dave Biancosino announced that this was his last STCG Subgroup meeting. He is taking a new job with the DOE/STP Lab Team. We will miss him.

Endorsement of H2S Technology (Ed Thornton)

Ed made a presentation called "In Situ Chemical Treatment of Soils by Gaseous Reduction – Demonstration Results and Hanford Deployment Initiative" at the February 3 Subgroup meeting. It covered the results of testing done by PNNL at the DoD White Sands Missile Range with funding from DOE/EM-50 and support in the field from Sandia National Laboratory. At White Sands, excavation was too expensive. The local EPA, the Army, and the State of New Mexico were all supportive of the H2S technology. The technology could have a potential application at Hanford to prevent chromium levels in the 100-Area soils from impacting the groundwater.

Fred asked the Subgroup if there were any issues about this technology that they wished to discuss. Wade Riggsbee stated that he wants to endorse any technology that will help clean up the Site. The only issue he is worried about is introducing another contaminant into the environment. John April provided Wade with background information to help him present the H2S technology to the Yakama Indian Nation Council. There is an ASME peer review of this technology in Maryland next week. Wade wants to see the results from that review.

Ed showed a vugraph to help address Wade's concern. The technology includes offgas treatment of any H2S that is not consumed in the subsurface reactions with chromium. Hexavalent chromium is reduced to the trivalent state, which is non-toxic. A precipitation of chromium hydroxide, which is insoluble, then occurs. H2S is oxidized to sulfur in the process. The extraction wells are purged with air to remove any residual H2S from the system.

At Hanford, the demonstration/deployment would be far enough away from the river to not be influenced by fluctuations in its flowrate. One possible site is a crib in the 100-C Area. The 100-K Area and the 100-D Area are other possible sites. Ed is working with BHI and CH2M-Hill to identify the best site for the EM-50-funded demonstration. He plans to start writing the test plan as soon as the technology is endorsed.

Dennis Faulk thinks that this technology will work. The potential sites (reactors and retention basins) are a long way from the river. He thinks that the 100-C Area is the best site since it's farther from the river.

The technology was endorsed by all the voting members present. In addition, it was endorsed via e-mail by Doug Huston (Oregon Office of Energy) and John Stanfill (Nez Perce Tribe)

Endorsement of Vadose Zone S&T Needs (Mike Truex)

Mike stated that he is in the process of updating the FY 1999 S&T needs and developing 15 new Groundwater/Vadoze Zone (GW/VZ) S&T needs. He is working with Terri Stewart and Clark Carlson on the GW/VZ needs summaries. Many of them are focused on developing knowledge or understanding. Dave Biancosino reminded the group that if they want to impact the FY 2001 budget, they need to get the new needs into the GW/VZ Project Baseline Summary (PBS) submittal by April 15.

The GW/VZ Integration Project Specification outlines the S&T Roadmap and its four technical elements (inventory, vadose zone, groundwater, and river). S&T needs are identified under each of these technical elements. They used a rigorous process with broad participation to identify the underlying technical gaps that form the basis for the project S&T needs.

Jim Hanson mentioned that SCFA is trying to set up an applied science program to provide a bridge between the EM Science Program (EMSP) and the technology development/deployment program. This led Dennis Faulk to ask whether the new GW/VZ needs will be classified as basic research needs or applied science needs. Dave Biancosino answered that thy will be called technology needs for now so they can get into the PBS and get funded by SCFA. Applied science will be mentioned in the needs write-ups. Jerry White agreed that they should start out as technology needs. If no technology solution exists, and nothing is being developed, then the needs can be sent to EMSP.

Dennis Faulk asked if all the work the Subgroup has done over the past four years is included in the new package. He is not sure exactly what we're endorsing now. As a project manager, he would like to be able to easily find his carbon tetrachloride needs in the package. Mike responded that no needs will be lost. The Subgroup will endorse the full S&T needs package before summer. By then, some of the old needs may be consolidated or eliminated if there are significant overlaps with the new GW/VZ needs.

For the near-term deadline, the Subgroup must endorse the brief summaries of the new GW/VZ needs for the April 15 PBS submittal. At the same time, the full-blown S&T needs statements will be developed for the FY 2000 S&T needs package. The needs summaries will be distributed to Subgroup members electronically by the end of March.

The Natural and Accelerated Bioremediation Research Program (NABIR) Field Research Center (Phil Long)

DOE's Office of Biological and Environmental Research (OBER) proposes a Field Research Center (FRC) as part of a coordinated laboratory and field research effort to understand the biological and biogeochemical processes that contribute to bioremediation of DOE's metals- and radionuclide-contaminated sites. The FRC will provide directed field research at Hanford (or other selected site), but with applicability to other DOE sites. PNNL will be submitting a proposal to be selected as the NABIR FRC. The winning proposal must have applicability across the DOE Complex. It must provide long-term solutions to metals and radionuclide contamination at Hanford and the other DOE sites. There are at least three competitors for this project.

The Hanford proposal will focus on the 100-H Area, where the groundwater is shallow. Uranium, chromium, and technetium are present in the aquifer. It is a shallow, thin aquifer, which is good for accessibility and control. This project will not interfere with current work in the area. Characterization data is already available for the area. The ongoing pump and treat operation could serve as a secondary containment system.

The approach involves progressive experimental sophistication, starting with site characterization and continuing through to barrier research. The initial work will focus on an uncontaminated control site. Subsequent work will focus on the chromium-contaminated part of the site, progressing to technetium- and uranium-contaminated areas. All work at the site will be approved by the DOE Site Manager and the Washington State Department of Ecology.

They plan to lock down the footprint for the study area by April 13. The general sequence of activities at the FRC would include:

- Initial characterization
- Assessment of in situ microbial activity
- Biostimulation
- Bioaugmentation
- Microbiological barrier research.

Eleven boreholes are envisioned: 3 injection wells, 5 monitoring wells, and 3 extraction wells.

The project would have direct impacts on five of the STCG Subcon science needs:

- RL-SS26-S
- RL-SS27-S
- RL-SS28-S
- RL-SS33-S
- RL-SS34-S.

Proposals are due on June 1, and the award will be made on October 1. The environmental analysis is due on April 13. There will be site visits by the proposal review team between June 1 and October 1. The proposal team would like Subgroup endorsement of their proposal. Fred

noted that we would plan to endorse it at our April meeting. Regulators and stakeholders will be involved down the road in reviewing and approving specific tests. Phil promised to send the environmental analysis to the Subgroup members for their review prior to April 13. The ultimate decision to go forward with this proposal rests with DOE and Ecology.

Subgroup Annual Calendar

Several specific suggestions were offered to update the Subgroup calendar. A science needs workshop is being planned for April, with Terri Stewart serving as the facilitator. Everyone was asked to look at the Subgroup's FY99 Work Plan and identify key items to be included in the calendar. The facilitator agreed to update and distribute the calendar.

Action Items

- Send the new GW/VZ S&T needs summaries to the voting members for their review and comments (facilitator). Done
- Send the NABIR handouts to the absent members (facilitator). Done
- Forward Barbara Harper's e-mail message regarding her concerns about the science needs to Jim Hanson (facilitator). Done

Attendees

John April (BHI)
Dave Biancosino (DOE-RL/STP)
Bill Bonner (PNNL)
Craig Cameron (EPA)
Clark Carlson (PNNL)
Linda Fassbender (PNNL)
Dennis Faulk (EPA)
John Fruchter (PNNL)
Tyler Gilmore (PNNL)
Jim Hanson (DOE-RL/STP)
Phil Long (PNNL)
Wayne Martin (HAB)
Wade Riggsbee (Yakama Indian Nation)
Fred Serier (DOE-RL/AME)
Terri Stewart (PNNL)
Ed Thornton (PNNL)
Arlene Tortoso (DOE-RL)
Mike Truex (PNNL)
Jerry White (BHI)